DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Smaller et al. US 3,701,133 (Smaller hereinafter).

Regarding claim 1, Smaller teaches a storage medium (Fig. 2) comprising: an information layer (12) including transparent and non-transparent areas in which the information is stored, and a magnetizable layer (14) intended to contain at least one magnetized area (Magnetization states -M, +M), which is temporarily created when a light spot is transmitted by a corresponding transparent area of the information layer (light transmitted by the analyzer will be approximately proportional to the magnetization seen by the readout beam, and thus the photodetector 36 output signal will be essentially proportional to the magnetization, col 7 lines 3-7).

Regarding claim 2, Smaller teaches a storage medium as claimed in claim 1, further comprises a separation layer (16, Fig. 2) such that said magnetized area (14) is greater than the corresponding transparent area (the polarized beam is reflected from a portion of the magnetized surface having a positive magnetic bit stored therein, col 1 lines 15-45).

Regarding claim 3, Smaller teaches a storage medium (10) as claimed in claim 1, wherein the information layer (12, Fig. 2) comprises an array of data bit arranged in macro-cells, each macro-cell being intended to be read by a single light spot (The change of light level detected is distinctive of the information stored; in a binary system the change of light level for a "1" bit is different than that for a "0" bit, thus allowing detection and readout, col 2 lines 15-18).

Regarding claim 4, Smaller teaches a storage medium (10) as claimed in claim 1, wherein the magnetizable layer (14, Fig. 2) is made of a ferrimagnetic material such that magnetization of said material at room temperature is approximately zero, while for higher temperatures said material becomes magnetized (of a magnetic material such as a ferromagnetic, ferrimagnetic or antiferromagnetic material, which exhibits the property of a relatively high coercive force, col 5 lines 18-25).

Regarding claim 5, Smaller teaches a reading device for reading information from a storage medium (10) as claimed in claim 1 (a method and apparatus for improving the operation of a magneto optic readout system col 2 lines 50-64), said reading device comprising: an optical element for generating an array of light spots from an input light beam (A light source 6 such as a laser, is disposed to direct a light beam against the medium 2, col 4 lines 3-7), a light spot being intended to temporarily create the magnetized area in the magnetizable layer when passing through the corresponding transparent area of the information layer (light transmitted by the analyzer will be approximately proportional to the magnetization seen by the readout beam, and thus the photodetector 36 output signal will be essentially proportional to the magnetization,

col 7 lines 3-7), and a magnetic sensor comprising an array of sensor elements for detecting the at least one magnetized area (the modulated magnetization is sensed by detecting readout signals within a selected frequency band, col 3 lines 15-22).

Regarding claim 6, Smaller teaches a reading device as claimed in claim 5, further comprising a phase-modulator for scanning the storage medium by applying a phase profile to the input light beam and by varying the phase profile (the stored information is itself modulated or altered to produce a modulated component of the light reflected from the media, col 1 line 65 col 2 line 18).

Regarding claim 7, Smaller teaches a reading device as claimed in claim 6, wherein the phase-modulator is placed in the light path of the input light beam (the stored information is itself modulated or altered to produce a modulated component of the light reflected from the media, col 1 line 65 col 2 line 18).

Regarding claim 8, Smaller teaches a reading device as claimed in claim 6, wherein the phase-modulator is placed between the optical element and the storage medium (An interrogating means 4 is operatively coupled to the medium 2 to modulate or alter the states of magnetization recorded therein. The interrogating means 4 may comprise any of various sources and coupling means for applying or example, a magnetic field, a local temperature, a strain, etc. A light source 6 such as a laser, is disposed to direct a light beam against the medium 2, and a light detection means 8 is disposed to receive the component of light reflected from the medium 2, col 3 line 66 col 4 line 8).

Regarding claim 9, Smaller teaches a reading device as claimed in claim 5,

wherein the magnetic sensor is a tunnel magneto-resistance sensor or a giant magneto-resistance sensor (the modulated magnetization is sensed by detecting readout signals within a selected frequency band, col 3 lines 20-22).

Regarding claim 10, Smaller teaches a reading device for reading information from a storage medium (a method and apparatus for improving the operation of a magneto optic readout system col 2 lines 50-64), said storage medium comprising an information layer including transparent and non-transparent areas in which the information is stored (12, Fig. 2), said reading device comprising: an optical element for generating an array of light spots from an input light beam (A light source 6 such as a laser, is disposed to direct a light beam against the medium 2, col 4 lines 3-7), a magnetizable layer intended to contain at least one magnetized area, which is temporarily created when a light spot is transmitted by a corresponding transparent area of the information layer, and a magnetic sensor comprising an array of sensor elements for detecting the at least one magnetized area (light transmitted by the analyzer will be approximately proportional to the magnetization seen by the readout beam, and thus the photodetector 36 output signal will be essentially proportional to the magnetization, col 7 lines 3-7).

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENOK G. HEYI whose telephone number is (571)270-1816. The examiner can normally be reached on Monday to Friday 8:30 to 6:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph H. Feild/
Supervisory Patent Examiner, Art Unit 2627

/Henok G Heyi/
Examiner, Art Unit 2627